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STANDARDIZATION OF CHEMICALS USED IN ANALYTICAL WORK

The attention of chemists engaged in water analysis is called to the formation by the American Chemical Society of a committee to standardize the specifications for reagents used in the laboratory. The chief complaints about these reagents relate rather to lack of reliability of the analyses than to unsatisfactory quality of the materials themselves, although there are many cases of impurities causing dissatisfaction which could have been removed by the exercise of more care in their preparation. Insufficient knowledge on the part of the producer as to requirements and acceptable methods of testing has been one cause of dissatisfaction, and some makers have signified their willingness to follow standard specifications and methods of testing. The conditions found by the Bureau of Chemistry of the United States Department of Agriculture during the last four years, when about 1,300 shipments of chemicals from many dealers and manufacturers were tested, are as follows:

Most of the chemicals are satisfactory although occasional impurities are found in chemicals from practically all manufacturers; it is necessary to test all shipments. The standard acids, ammonia, alkali salts and alkali, and most organic solvents are generally satisfactory. The soluble salts other than alkali salts are generally acceptable but seldom of a high degree of purity. Certain organic solvents and solids are either unobtainable or unsatisfactory. The insoluble products are generally unfit for use in analytical work.

Water chemists who desire to submit standard specifications for reagents for the Committee's consideration are requested to communicate with its secretary, W. D. Collins, Bureau of Chemistry, Department of Agriculture, Washington, D. C. Water supply chemists will undoubtedly second any attempt to secure standardization and reliability of the goods sold. Standardization can be secured and specifications can be written with comparative ease, but the writer has mental reservations about the practicability of securing at an early date any guarantee of the truthfulness of what is printed on the label. In the museum of the Rensselaer Polytechnic Institute there are some odd instances of the short-comings of one of the best and most trusted houses supplying chemicals of high grade to American laboratories. One bottle is labeled "Oleic Acid;" it contains oxalic acid. A second labeled "One Pound Boric Acid" really contains boric acid—together with a boulder of silica nearly

the size of an egg. The third curiosity is a 1-ounce bottle filled with phosphorus penta sulphide; it is labeled "5 lbs. Calcium Carbonate." What a strain on the bottle!

Now, what is the remedy? There are those who believe good may come from publishing the names of such concerns as are responsible for errors like those mentioned, but the employee is the one directly at fault and he cannot be always watched. We must not require too much and thus become impracticable. What person eating soup at dinner can be certain as to what did or did not happen to it before it reached him? Let us have standards by all means, and have hope that the manufacturers will live up to them, but let us keep an open eye ourselves, just as of yore.

W. P. MASON.

FLUSHING WATER MAINS

One of the features of maintenance work about which practically nothing has been printed is flushing water mains. There are so many opportunities for unusual and interesting incidents to occur in such work that it seems to be time to call for an account of them. Collectively, they should prove instructive reading. No matter how good the water is, mains must be flushed sooner or later, to get rid of mud, or iron, or organic matter. Possibly the nature of the contamination which makes flushing necessary will have some influence on the method of conducting the work most successfully. The general method adopted in Muscatine is as follows:

A section of a main from a few blocks to half a mile long is shut off by gates at the ends and side streets. If there is a flush gate on the section, it is opened and the main flushed out through it. If there is no gate, then the hydrants are opened, beginning with that at the highest elevation, or source of supply if a reservoir is used, and working downward, hydrant by hydrant. When the mains have been flushed, the cross-mains are cleaned out similarly. Although the work in the outlying districts is done during the day, most city flushing is best conducted in the night time so as to cause as little inconvenience as possible.

Our experience indicates that it is necessary to have a good force of men on the job, in order to be able to open the gates promptly in case of fire. The damage done by a bad fire is so much greater than the few dollars in wages for the men required to turn on water